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EXAMINER

TRAN, NGUYEN

ART UNIT

PAPER NUMBER

2838

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/522,938

Applicant(s)

NADDEI, ROSS

Examiner

Nguyen Tran

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/13/2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 03/24/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because applicant provided a hand numbering of Fig. 1 and it's not legible. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

Claim 1 objected to because of the following informalities:

Claim 1 recites the limitation "the battery" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 9 “outputs a signal to the output of the threshold voltage is above” is grammatically unclear as it is not clear how threshold voltage has an output, on what is above the threshold voltage.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Gelbman et al. (US 6184650).

Regarding claim 1: Gelbman et al. discloses (Fig. 3A & 3B) an apparatus for lowering internal battery resistance (Col. 1, lines 5-8), comprising

a pulse generator **34** for delivering pulses to at least one terminal of the battery **12** (Col. 4, lines 5-30) and

a controller **U1,1** or **U1,13** for controlling the pulse generator **34** and comprising a voltage input selector **R10** or **R30** for selecting the voltage at which the controller (Fig. 3A & 3B) is operated.

Regarding claims 2 and 3: wherein the voltage input selector **R10** or **R30** comprises at least two threshold voltages at which the controller operates (*Examiner note: R10 and R30 is a variable resistor. Therefore a desirable high and low threshold voltage inputted into the comparator U1,1 or U1,13 can be adjusted by R10 and R30*).

Regarding claim 4: wherein the voltage input selector comprises a switch CCW or CW coupled to a voltage divider R9, R10, R11, or R29, R30, R31.

Regarding claim 5: wherein the controller U1,13 has an input (pin 11) connected to the output (pin 2) of the pulse generator 34.

Regarding claim 6: wherein the controller U1,13 has an output (pin 13) connected to an input (pin 5) stage of the pulse generator 34.

Regarding claims 7 and 8: wherein the controller includes a comparator U1,13 for comparing the threshold (*Examiner note: R10 and R30 is a variable resistor. Therefore a desirable high and low threshold voltage inputted into the comparator U1,1 or U1,13 can be adjusted by R10 and R30*) of the voltage input selector with a reference voltage ($V_{\text{reference}}$ or battery voltage) (Col. 5, lines 21-21).

Claims 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Hooper et al. (US 6307352).

Regarding claim 16: Hooper et al. discloses (Fig. 1) an electronic circuit 18 for indicating a battery condition, comprising

- an indicator means 18,
- a first input for connection to a battery (Fig 1),
- a second input for connection to an output of a controller (Fig. 1) of a pulse generator 22

wherein the indicator means 18 provides an indication of the voltage of a pulse applied to the battery (Col. 4, lines 39-56).

Regarding claim 17: The indicator means **18** provides an indication that the voltage of a pulse applied to a battery has one of a plurality of possible amplitudes (Fig. 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gelbman et al. (US 6184650) as applied respectively to claim(s) 1-8 above, in view of Hooper et al. (US 6307352).

Regarding claim 9: Gelbman et al. discloses all the limitations of the claim(s) 1-8 as discussed above, but does not specifically disclose the comparator outputs a signal when the threshold voltage is above the reference voltage.

Within the same field of endeavor, Hooper et al. teaches that a comparator advantageously provides a desirable safety feature and acts to disable or enable a charge pulse circuit (Col. 4, lines 5-10 & Col. 7, lines 10-17), (Fig. 7) wherein the comparator **14** outputs a signal when the threshold voltage (output of 30A) is above the reference voltage (Col. 7, lines 14-17)

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have modified the circuit of Gelbman's invention taught by Hooper et al. with a reasonable expectation of success because Hooper et al. teaches that a comparator

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advantageously provides a desirable safety feature and acts to disable or enable a charge pulse circuit (Col. 4, lines 5-10 & Col. 7, lines 10-17).

Regarding claim 10: wherein the pulse generator **34** comprises an input stage (pin 5) including a wave generator for generating a wave having a predetermined frequency and wave width (Col. 4, lines 35-50).

Regarding claim 11: wherein the wave generator comprises a square wave generator (output of 34 at pin 2).

Regarding claims 12 and 13: wherein the pulse generator **34** includes an input switch **Q4** controlled by the controller **32**.

Regarding claim 14: wherein the controller is configured to vary the amplitude of pulses delivered to the battery in accordance with the internal resistance of the battery (Col. 5, lines 37-48).

Regarding claim 15: Gelbman et al. discloses all the limitations of the claim(s) 1 as discussed above, but does not specifically disclose a battery condition circuit for indicating the amplitude of predetermined pulses delivered to the battery.

Within the same field of endeavor, Hooper et al. teaches that it is desirable to have a feedback circuit **18** as a battery condition circuit that provides information to the controller **10** to adjust the duration, amplitude, frequency, rest periods, etc. of the charging cycle for a desirable safety feature (Col. 4, lines 39-56), (Fig. 1) condition circuit **18**

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have incorporated a condition circuit into Gelbman's invention taught by Hooper et al. for indicating the amplitude of predetermined pulses delivered to the battery of

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Gelbman's invention with a reasonable expectation of success because Hooper et al. teaches that it is desirable to have a feedback circuit **18** as a battery condition circuit that provides information to the controller **10** to adjust the duration, amplitude, frequency, rest periods, etc. of the charging cycle for a desirable safety feature (Col. 4, lines 39-56).

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hooper et al. (US 6307352) as applied respectively to claim(s) 16-17 above, in view of Broell et al. (US 5710506).

Regarding claims 18 and 19: Hooper et al. discloses all the limitations of the claim(s) 16 and 17 as discussed above, but does not specifically disclose the indicator means includes three different indicators, wherein the indicator means comprises three LEDs each connected to an output stage of an associated operational amplifier.

Within the same field of endeavor, Broell et al. teaches that a control circuit advantageously comprising three LEDs that provide a visually display of varying amounts of displayed information (Col. 13, lines 19-21), (Fig. 2) three different indicators, wherein the indicator means comprises three LEDs (**LED_{1,3}**) each connected to an output stage of an associated operational amplifier **71** or **72**.

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have incorporated a control circuit that comprising three LEDs into the feedback circuit of Hooper's invention taught by Broell et al. to display a various of information of Hooper's invention with a reasonable expectation of success because Broell et al. teaches that a control circuit advantageously comprising three LEDs that provide a visually display of

varying amounts of displayed information (Col. 13, lines 19-21).

Regarding claim 20: Broell et al. teaches an input of each of the operational amplifiers 17 or 72 is connected to a reference voltage source 66.

Claims 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. (US 6404175) in view of Gelbman et al. (US 6184650).

Regarding claims 21 and 23: Yang et al. discloses (Fig. 2) a filter circuit 206, a switch 202 or 216 and an inductor means 204 wherein the switch is configured to be switched on in accordance with the signal generated by the wave generator 208 (Col. 3, lines 61-68), and in combination with the inductor means is configured to generate a periodic pulse (*Examiner note: The inductor mean is configured to receive periodic waveform from the output of the PWM 208, therefore the a period pulse is generated at the output of the inductor mean*),

but does not specifically discloses an apparatus for lowering battery internal resistance of a battery.

Within the same field of endeavor, Gelbman et al. teaches an apparatus which is reliable and less expensive desulfation system which generate high amplitude pulses (Col. 2, lines 48-52), (Fig. 3A & 3B), an apparatus for lowering battery internal resistance of a battery 12 (Col. 1, lines 5-8).

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have modified Yang's invention wherein both the switch and inductor means are connected to one terminal of the battery taught by Gelbman et al. circuit to lowered the internal resistance of the battery with a reasonable expectation of success because Gelbman

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et al. teaches an apparatus which is reliable and less expensive desulfation system which generate high amplitude pulses (Col. 2, lines 48-52), and to lower the internal in order to provided more power at the output (Col. 1, lines 59-65).

Regarding claim 22: Yang et al. teaches (Fig. 2) the inductor means **202** is connected to an output of the switch **214** and to an output of the filter **RL**.

Regarding claim 24: Yang et al. discloses the limitations of the claim(s) 21 as discussed above, but does not specifically discloses a pulse width selector for altering the width of the pulse generated by the apparatus

Gelbman et al. teaches that it is advantageously provided a selector that altering the width of the pulse generated by the comparator to control the transistor (Col. 5, lines 20-24), (Fig. 3A & 3B) a pulse width selector **CCW** or **CW** for altering the width of the pulse generated **34** by the apparatus.

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have incorporated a pulse width selector into Yang's invention taught by Gelbman et al. with a reasonable expectation of success because Gelbman et al. teaches that it is advantageously provided a selector that altering the width of the pulse generated by the comparator to control the transistor (Col. 5, lines 20-24).

Regarding claim 25: Gelbman et al. teaches a pulse frequency selector for adjusting the frequency of the pulse generated by the apparatus (Col. 4, lines 63-68 & Col. 5, lines 1-10) (See motivation for claim 25, which applies here).

Regarding claim 26: Yang et al. teaches (Fig. 2) the inductor means **202** comprises two inductors **200** in parallel.

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Regarding claim 27: Gelbman et al. teaches (Fig. 3A & 3B) a controller **U1, 13** for selectively controlling operation of the apparatus in accordance with a threshold voltage setting **CW** (*Examiner note: R30 is a variable resistor. Therefore a desirable high and low threshold voltage inputted into the comparator U1,13 can be adjusted by R30*) (See motivation for claim 27, which applies here).

Regarding claim 28: Yang et al. teaches (Fig. 2) an input of the controller **212** is connected to the inductor means and the switch **214** (*Examiner note: the non-inverting input terminal of the controller 212 is connected to the inductor mean and the switch through the feedback circuit.*)

Claims 29 rejected under 35 U.S.C. 103(a) as being unpatentable Gelbman et al. (US 6184650) and Yang et al. (US 6404175) as applied respectively to claim(s) 21 above, and further in view of Broell et al. (US 5710506).

Regarding claim 29: Gelbman et al. and Yang et al. discloses all the limitations of the claim(s) 21 as discussed above, In addition Gelbman discloses (Fig. 3B) a controller **U1, 13** for selectively controlling operation of the apparatus depending on a threshold voltage setting of the controller (*Examiner note: R30 is a variable resistor. Therefore a desirable high and low threshold voltage inputted into the comparator U1,13 can be adjusted by R30*),

but does not specifically discloses a battery internal resistance indicator for providing a visual indication of at least two different internal resistance values for the battery.

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Within the same field of endeavor, Broell et al. teaches that a control circuit advantageously comprising three LEDs that provide a visually display of varying amounts of displayed information (Col. 13, lines 19-21), indicator for providing a visual indication **LED₁₋₃**.

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to have incorporated an indicator into the lower internal resistance circuit of Gelbman's invention taught by Broell et al. for providing a visual indication of at least two different internal resistance values for the battery **12** of Gelbman's invention with a reasonable expectation of success because Broell et al. teaches that a control circuit advantageously comprising three LEDs that provide a visually display of varying amounts of displayed information (Col. 13, lines 19-21).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen Tran whose telephone number is 571-270-1269. The examiner can normally be reached on M-F 7:30-5:00, OFF every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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